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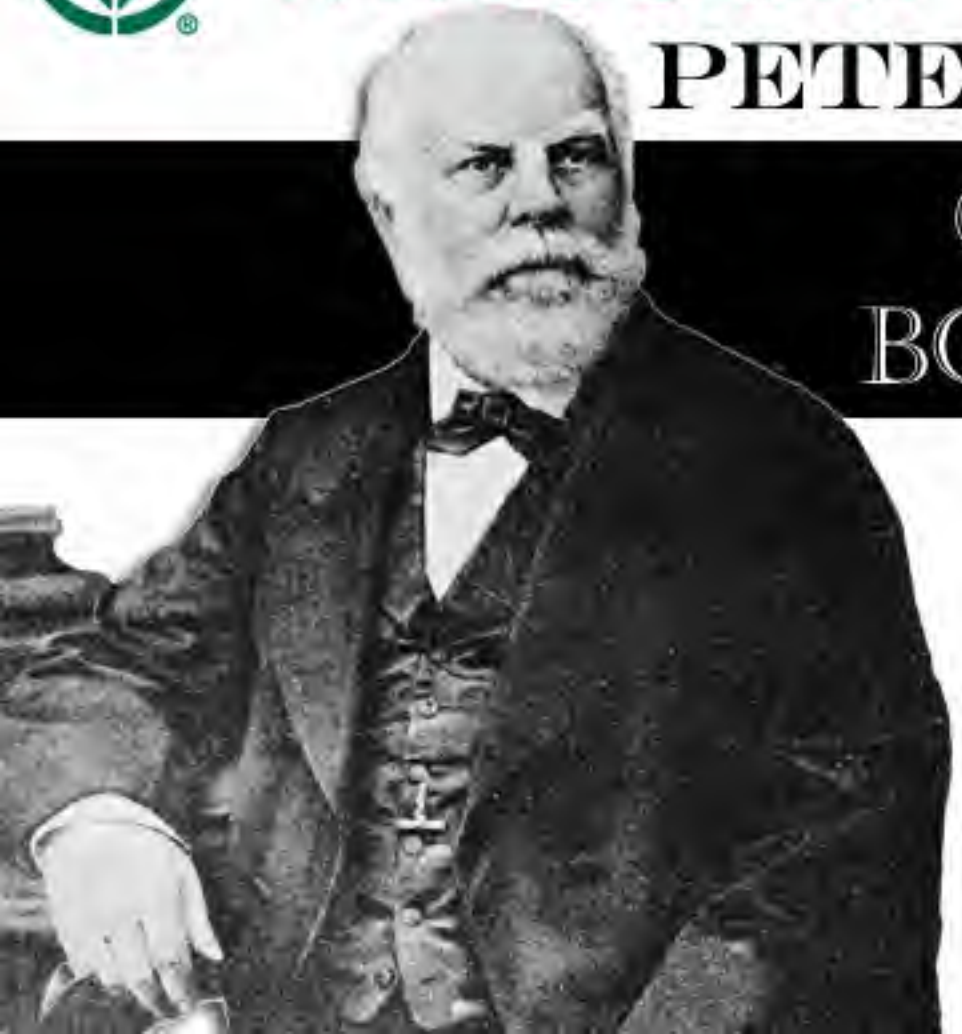

Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

Alisma Plantago fol
calyx inbricat
corolla valvat — praeflorat. involut
stam. 6 C. sepali et petali alt.
ovar. 6 verticillat sigula.
seorsum dispositi

Echinodorus: fl. hermaphr.
calyx et cor. coroll. inbricat, praeflorat, involut
stam (6 ? vel) pleura
sepali petalaique opposit,
ovaria in capitulum disposita.

Sagittaria: fl. monoic s. dioic.
rare polygamica
calyx ut in Echinodoro

Sag ? capsellis compressis disperm
dorso nitidis
Echin ? capsellis turgidis angulatis s.
plurisulcatis nitidis.
(Sem obtuse trifolii, testam
nigro-fuscum foliis

10111

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Dr Darlington in his Flora published 1826
observes that Sagittaria sagittifolia (arrowhead)
bears tubers; Kalm has already stated the same
as Darlington observes in a letter to Gray Sept 20. 1858.
and says that they are sometimes as big as a mans
fist; Darlington has seen them as big as a
pullets egg and smaller. They do not seem
to occur in dry ground, but in miry, muddy
places. — He says that they are the end of stolons.

Note, Octob 21st Sagitt. stolonifera D & Gr. (non C. graminea
N. Linth. I p. 26. was found on such specimens
and I observe it also in several Sagittaria.
Is it found in all perennial Sagittaria? And
are some Sagittaria annual? I suspect
that my S. calycina is an annual (or biennial
plant — S. natans also ??
?)

10112

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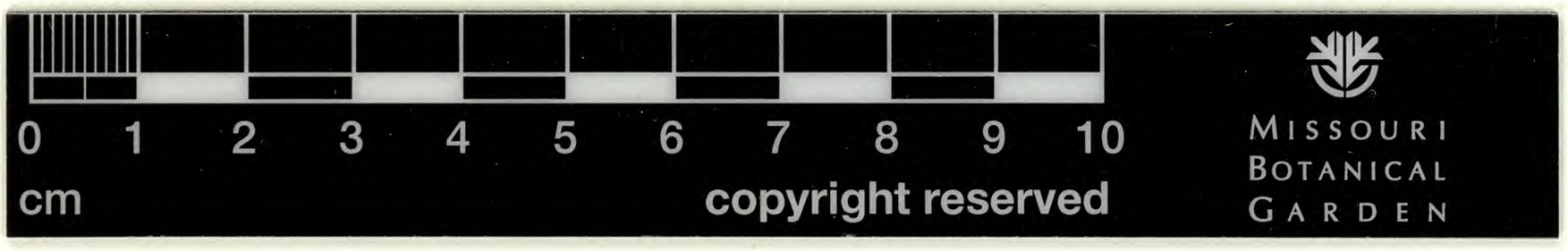


Aug. 1856

Sagittaria calycina

humilis, foliis late ovatis, obtusis, profunde hastatis; lobis late triangulatis vel de divaricatis, scapo debili tenuissimo, demum decumbente, verticillis paucis, 2–3 floris; bracteis orbiculatis, abbreviatis membranaceis; pedicellis fertilibus sterilibusque aequilongis pedicellis fert. C.-brs planoque singulis saepius binis; pedicellis fertilibus post inflorescentiam incrassatis (pollicaribus) recurvatis;

sepalis orbiculatis carinatis (albo-basin inde triangulari)

floribus fertilibus ph sub 12 mm. diam.

stamina in 4 seriebus opposita

petala ovata longe
filam. as long as anther, subulata, ~~margin papillosa~~ slightly pap. close
anthers subconnivent, scarcely connate at base;
stylis subulatis, ovario longioribus

Plants of a sterile flower a little longer than anthers — post anthesin only!

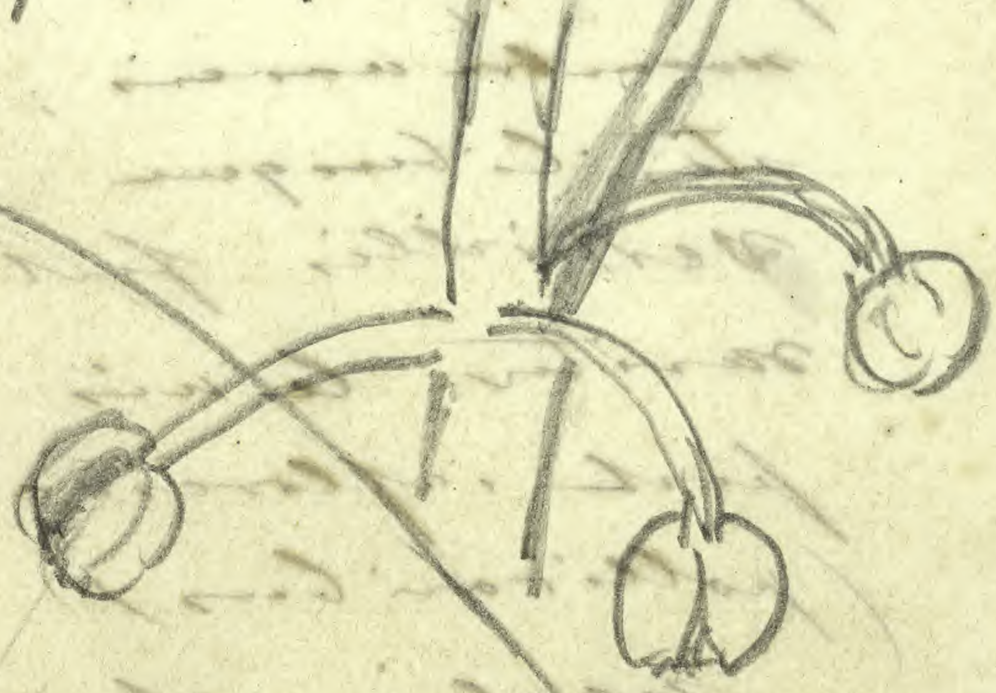
sterile flowers also with a mere rudiment of ovary & stigmata, only not so many

over

filamenta cum th. sterile fl. fere (not more than 24 count)
but ovaries extremely numerous in the fert. fruit elongate narrow, subulate horizontal style half as long. fruits only erect

10113

an immense form of this
also H C Torrey
Herb Torr. for ½ Lonicera Hale
leaf as figured Upper Austral Branches
also heranophor !
heads of disk flowers.
pubescent without.
Corolla lanceolate acute !



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Sagittaria sagittata Thunb. Jap. } = S. chinensis
Sagitt. sagittifolia Lour. cochin. Sims
Bot Mag 1814

S. chinensis Lou Chou
Ch Wright in Hk Gray 1856

S. sagittif. Beecheys Voy p. 220
has fem. pedicels. very short! (= S. sagittif?)
S. sagittif. Jas Funk Kashmir, Hk Hook
has ♂ & ♀ pedicels very slender, see note Hk Hook

figure in Bot Mag

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Memoranda made in

Examined by Herbaria

65-82

19

10120

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Aplopappus Cass

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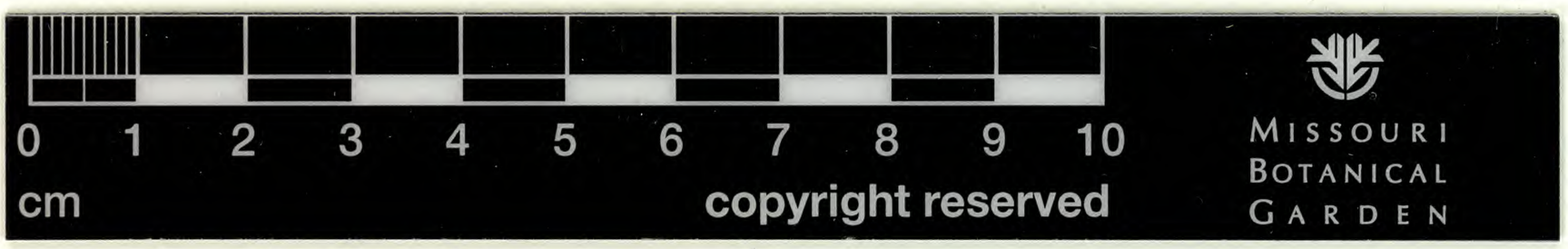

[Held 57]

From Bowdoin Report
written for Prof Torrey
New York

Sagittaria calycina

pedicellis petalibus
pedicellis fructiferis steriles
aequantibus, demum
reflexis

floribus omnibus subhermaphro-
ditis; fl. petalibus sub-
10 dandris, staminibus
polyandris
ovata in pauca staminalia genuina
laciniosa f.
f. lanceolatis subulatis thecis
late
antheram ovatam aequantibus
seu
sera penula longiora superantibus

stylo erecto ovario longiore
in achenio rapillo
maturo obovato horizontali
in capellis maturis obovatis
Rpl. dimidio longioribus horizontali
calu
sepalis obviolatis persistentibus
rarx pella involventibus
arcte

L. maxima foliis
maximis sinu latissimo
hastatis, lobis divaricatis, acutis

Near Dunlap Depot

Dr. Allen's residence

Pea Ridge

Sept. 1, [illegible]

Near Fayetteville

Ark.

Maine & Delaware

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tenuiter subulata – appendiculis

parce obtuse dentatis
brattis lanceolatis dentatis
ventricosis fructiferis glabris
capitulis magnis

Hab. Columbia

B. media. foliis majoribus
sinu latissimo hastatis, lobis
divaricatis v. divaricato-deflexis,
~~rarius~~ acuminatis
saepe debilibus v. simplicibus
ventricosis (rarius
duobus) fructibus; capitulis
ut in norma

Hab. in paludibus Jefferson Co
Missouri.

β. f. glaucifolia foliis ~~obovatis~~
oblongo-lanceolatis glaucescentibus
saepe debilibus ventricosis saepe
1-2 floris, bracteis oblongis brevibus pedicellis elongatis
capitulis minoribus; inaequilobis

Ovum

10122

In the Herbarium - Missouri

and Wright 1899

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April 1856

Sagittaria

I. filamentis subulatis

A. glabris

1. *S. sagittifolia* L. filamentis antheram ovatam aequantibus stylis ovarium subaequantibus, capillis obsolete apiculatis.

2. *S. mexicana* E. filamentis antheram oblongo-linearem subaequantibus, stylis subnullis ovario multo brevioribus, capillis obsolete obovatis, brevissime apiculatis.

α. vera: filamentis antheram longioribus, pedicellis fructiferis masculos aequantibus, capillis apice apiculatis.

β? *neomexicana*: filamentis antheram subbrevioribus, pedicellis fructiferis quam masculis multo brevioribus, capillis ventre apiculatis.

3. *S. variabilis* E. filamentis antheram oblongo-linearem longioribus, stylis late subulatis falcatis ovario multo longioribus, capillis obovatis v. obovato-oblongis, ovato-rostratis.

4 *S. fluviatilis* E. filamentis antheram ovato-rhomboideam multo longioribus, stylis rectis ovario aequantibus, capillis obovatis rostratis.

S. natans ?

B. glandulosa — pubescentis

5. *S. falcata* Pursh. filamentis antheram oblongo-linearem aequantibus (v. ea longioribus ?) stylis subnullis rectis ovario aequantibus capillis oblanceolatis falcatis stylo recto rostratis. (*S. lancifolia* Ell. II. 591 !)

II. filamentis basi bulbosis

A glabris

6. *S. bulbosa* Don ♃ filamentis antheram oblongo-linearem aequantibus stylis ovario multo brevioribus, capillis obtuse obovatis, ~~vertice breviter~~ ventre breviter rostratis. (Texas)

7. *S. pusilla* Nutt. filamentis antheram ovatam aequantibus, stylis ovario aequantibus capillis obovatis, stylo erecto basi curvato breviter rostratis, 3 carinatis

8. *S. longiloba* ♃ filamentis antheram ovatam aequantibus, stylis ovario multo brevioribus capillis angute obovatis, ~~obtusis~~ v. ± X breviter apiculatis

B glandulosa — puberula

~~9. *S. simplex* Beck filamentis antheram ovatam aequantibus~~

9. *S. simplex* Beck filamentis antheram ovatam aequantibus stylis ovario brevioribus capillis angute obovatis ventre (v. marginis apice) breviter apiculatis

α *simplex* vera stylo horizontali ovario multo breviore (Ills.)

β *grandifolia* stylo erecto filamento ovario subaequante capillo falcato — rostrato (Miller)

β *acutifolia* stylo erecto ovario filamento antheram oblongam aequante

10. *S. graminea* Mich? Ell. Sk. ? stylus erectus ovarium aequantibus; capillis late obovatis rostratis

sors 9. β. ? ubi hæc ? an rejungenda

11. *S. heterophylla* Beck fil. anth. ovat. acquantibus stylis filiformis ovario multo longioribus. capillis angute obovatis longe rostratis, rostro erecto recurvo

Spec 856

Sagittaria variabilis Monoica s. Dioica stoloniferæ
foliis plerumque sagittatis, raro sæpe sæpe sæpe
simplicibus v. ramosis basalibus plerumque aeriis
natis vel subvillis plantis foemineis masculis ambobus
brevibus, anthers lineari-oblongis, plantæ
subulato globosis brevibus. stylis obtusatis
falcatis ovario duplo longioribus. capellis
late obovatis v. subborbicularibus, style triangulari
longitudine v. subæquante plus minus undulato
rostratis.

A. Glabratæ basalibus aeriis v. acuminatis

A. Obtusæ

1. obtusa simplex ramosa, foliis maximis obtusis,
lobis rectis, latis, parallelis

2. acuta simplex ramosa, foliis grandibus,
acuminatis dimidiato sagittatis.

3. subdivisa Simplex ramosa simplicibus subdivisis
foliis sagittatis acutis, lobis acuminatis,
rectis v. divaricatis.

B. Monoicæ

4 communis

5. hastata

6. angustifolia

7. gracilis

8 Dorsifolia A lobis foliis integris ort
v. lobo singulo lineari vel hastatis

9. Cancellata S. Carolina, foliis lineari-
lanceolatis rigidis,

II Pubescentes

10? pubescens Panicula Scapo v. inferne
pontibus obsoleto ovatis obtusis pubescen
v. hispidis (fruit not seen
but style identical with main form)

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10123

S. pygitthifolia, monoica, foliis
pygitthatis, lobis dorsiatis (parce
integris, subinde subomnino dilacerato-
ventricillosis infimis foemineis; (sed vallis foemineis
maximis multo (ter quaterve) brevioribus
petalis purpureo unguiculatis antheris ovatis
late purpureis — connectivo apice planato
subulatum glabrum segmentibus; stylo
triangulari ovario subaequante; capellis
obsolete dorsatis late alatis
stylo brevi, rito ~~rostratis~~ apiculatis.

Fil. et Anthera ad rad colour
of unguish and connectivum distinguish
it from S. variabilis

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April 1856

Sagittaria acutifolia / Philadelphia & Bethlehem /
= Stolonifera (Texas) / Pa. Lindley No. 183
foliis submersis acutis, emersis
linearibus lanceolatis praeditis, ~~Ovaria~~ stylo
ovarium duplo aequante, erecto — capsellis ?

See description of S. simplex in another
sheet; it differs only from it by the shape
of the leaves and the acute erect longer
style — fruit seems hardly different. —
Same Chapm — Flor. p. 476

Brachyscapula / bulbosa Don is a new published
Sagittaria ~~bulbosa~~ Don ? / in Oct. 1798 — never described
— nigh to the foregoing

radice bulbosa, foliis linearibus v. lanceolato
ensiformibus, floribus simplici v. ramoso
racemosis; bractéis aspectis obtusis; sepalis
patentibus petalis obovatis obtusis, in sectione
basi bulbosa glabris, antheris oblongo-
linearibus acquantibus; stylis ovario multo
brevioribus; capsellis obovatis obovatis ventre
horizontaliter rostratis

Hab. Swamps near Houston, Texas
N. Lindh 182. 1-1½ feet high; leaves 2-8 inches
long 2-6 lines wide, rigid; bulb forming
every year above the old one (Oxia is the
reverse) — covered by fibrous remains of
old leaves. —

Near S. falcata — distinguished by the
bulbous and naked filaments and the
almost obsolete fruit with a short beak, far below
the point on the anterior edge — Smaller in all its parts.

In Hab. Gray is the same, — injudicious, for Dr. Hale, Louisiana,
without bulbs, and another large form; scape 3 feet high,
much branched; leaves ½ foot long 2-4 or 5 lines wide,
petioles 1 foot long — some flowered fruit, anthers long
sepals mucronate, bulb of plant smaller, smooth

Ellis! II. 592

Sagittaria graminea Mich? foliis lineari-lanceolatis ~~planis~~ nullo S. sensim petiolum dilatatis; scapo foliis longiore, simplici, basi vaginis 3 nervis, triangulatis acutis ovatis, pedicellis foem masculis paulo brevioribus; ~~floribus~~ sepalis lanceolatis, staminibus basi bulbosis pubescentibus; ovario stylo aequilongo rostro brevi acuto; capsulis globosis, beaked rostratis.

Shallow water & margins of ponds

S. Carolina S. A. Curtis (A & C)

From 6–12 inches high, leaves with petioles 2–10 inches long; 1–3 lines wide, not rigid like S. graminea — Evidently allied to S. Simplex var acutifolia — and perhaps the same. Seems however distinguished by the shorter female pedicells, larger pea flowers and fruit heads, and larger fruit, which is distinctly pointed or rostrate. —

Probably two new acutifolia

April 1856

So simplex var ? yes!

S. Canon folio in my Herb
fr. Curtis foliis ovatis magnis, ~~Rhachibus~~ digitato nervosis, & transversim parallelo venosis; simplici Caulem triangulum acutis basi connatis; pedicellis fem. & mas. aequalibus elongatis; flaminis basi bullosa pubescentibus, antheris ovatis aequalibus; ovariis falcatis; stylo recto aequilongo rostratis; capsulis ovatis rostratis.

Georgia Curtis New Mexico
Leaves 1-2 feet high, leaves 3-6 inches long, 1-2½ wide. looks like a large & overgrown S. simplex, flowers also the same, but ovaries, styles, & capsules very different - no ripe capsules seen - pedicels 1-2 inches long

The Georgia plant is smaller is is hardly different from the ordinary St Louis form of S. simplex; style shorter than ~~form~~ ovary; somewhat like the form of acuti folia. — The description above refers to style of the New Mexico plant.

Leaves in both with the venation of the St Louis plant

10124

Sagittaria pusilla Nutt foliis subulatis
v. lanceolatis angustè lineari-lanceolatis pendulis
scapum brevem superantibus, (1–2 verticillatis
paucifloris; pedicellis sepalis ovatis obtusis
brevioribus; petalis ovatis acutis obtusis.
filamentis basi bulbosis; stylo erecto ovarium acquante; capsulis
stylo erecto curvato ovariam aequante; capsulis
angustè ovatis, dorso 3-carinatis
obovatis, stylo rostratis,
nec alatis. ——

Specimens from N Carolina & Penngl.
are identical. — Fruit indicates an
approximation to Echinodorus!

Sagittaria heterophylla var rigida, Nitgrass
plantis autumnalibus longioribus; foliis erectis elongatis
rigidis utrinque longe attenuatis, lineari-lanceolatis
5-nerviis, ——

S. heterophylla. stylo erecto recurvato subulato sub
expansa,
foliis nervosis, parallele venosis

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1. Sagittaria sagittifolia, Linn. V. fl. monoicis ~~hermaphroditis~~ s. acutis, bract. obliquis, verticillo infimo femineo, pedicellis femineis ~~erassiculis~~ tenuiculis multo brevioribus, petalis purpureo-unguiculatis, connectivo antherarum latissimo purpurascente?

2. Sagittaria sagittifolia Americana, species distincta: floribus monoecis s. dioecis; scapo simplici s. ramoso; ~~scapo compresso~~ stipitato sulcato (12 angul) verticillo infimo nodoso, vel pluribus femineis; bracteis acuminatis; pedicellis femineis masculis ~~divaricatis~~ gracilibus brevioribus; petalis (albis) unguiculatis, connectivo filamentis subulatis, antherarum duplo longioribus

3. S. heterophylla Pursh floribus monoecis, scapo simplici, debili demum procumbente; verticillo infimo femineo (subinde submasculo), bracteis obtusis, subrotundatis pedicellis femineis brevissimis masculis elongatis.

4. S. simplex Pursh floribus monoecis, scapo simplici, erecto, verticillo infimo plerumque s. pluribus femineis, bracteis obtusis triangulatis subacutis, pedicellis femineis in capitulum connatis; pedicellis masculos aequantibus elongatis. — filamentis e basi ~~cordata~~ crassa subulata glandulosa brevissime subulatis. antherarum connectivo aequantibus perigonii foliis exterioribus hebetatis margine pulcherrime obtuso, brevissime gibboso (stylo ventrali stipite brevissimo; capello obtuso

2. S. variabilis (Sagittaria Americana) is sometimes 5 high much branched fruit heads 10 lines in diameter — scape below 15–18 lines in diameter always 12-angled — 3 angles more prominent — filaments longer than anthers, but not always twice as long (Swamps of Alleghany to Ohio Sept 47

3. S. heterophylla (Swamps at head of Shoutea's Pond in water — very large specimens) scape with milky juice acutely triangular above female verticil, decumbent petiole on the large overgrown plant with 3 wings and two intermediate angles — Stamens exactly as in S. simplex.

3. S. heterophylla ovalifolia (margin of swamp back of Capt Bibbels — on the hills.) scape decumbent nearly terete, acutely triangular above the lowest (female) verticil; petiole mostly

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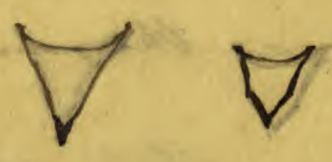
sharply 3angled, rarely somewhat three winged
with or without intermediate angles, but
these are never as prominent as in
the plants from Chanteau pond.



~~Sagittaria sagittifolia pedicellis fl. fem. ipsi fl. mas.~~
~~tar quatuor brevioribus, robustis.~~

S. pusilla Nutt.

April 1856

= S. macrophylla Juss ?

monoica

Sagittaria mexicana mon: foliis sagittatis, lanceolatis, lobis foliis ipsa longioribus, scapo erecto gracili, superne ramosis ramis laxiflora basi lanceolatis acuminatis, pedicellis gracilibus elongatis (masculis) fœmineis aequilongis; antheris filamentis ebasi connatis subulatis, anthera longioribus calycibus; nuce late obovata, alata, stylo brevissimo apiculata.

Zamora, western Mexico, — Stokes, May 1846 & Dr Gregg 1849. — Root 1–2 feet high; with large white flowers; leaves upper part sometimes 6 inches long with lobes of 7–8 inches in length; scapes several or many flowers almost from the base, pedicells 1½–2 inches long; about the length of the internodes.

In some respects allied to our S. simplex, but leaves very different, fruit & stamens. The resemblance consists in the elongated female pedicells and the short apiculate or almost blunt fruit.

Form of leaf &c.

monoica

Sagittaria mexicana foliis lanceolatis s. triangulatis, sagittatis, lobis divergentibus apicibus convergentibus; scapo simplici s. ramoso, basi foliis lanceolatis acuminatis, verticillo singulo s. pluribus ramis, pedicellis gracilibus brevioribus quam masculis filamentis subulatis antheris brevioribus, fructibus obovato-orbiculatis brevissime apiculatis

Santa Fe and below Albuquerque, Fendler. — Intermediate between variabilis & mexicana, approaching the latter in the form & style & fruit and the former in the shorter petioles, and more compact, inflorescence

Also Santa Fe, Dr Edwards — and San Elizario, Bigelow. This last one has lobes of leaf much longer than lanceolate, somewhat divaricate.

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Longest styles and therefore most brittly head of carpels has

S. heterophylla, next comes } brittly (echinate
S. variabilis, then }

S. falcata } short pointed
S. sagittifolia } carpels (tuberculate)

S. isoetiformis } blunt (or
S. pygmaea } arrow shaped
S. simplex } style (subulate to triquetrous)

lanceolata

Sagittaria fluviatilis, submersa, foliis fluitantibus, caule scapo gracillimo paucifloro, bracteis orbiculatis, obtusis, pedunculis superantibus elongatis floribus hermaphroditis 8–12 verticillatis, filamentis subulatis, loculis, antheris ovatis subduplo longioribus; stylo ovario aequante, muticis rostratis.

In the Merrimac near St Louis and in Western Texas (Wright No 1899.

Leaves 1–1½ inches long 1–3 C. wide linear with very narrow base or narrowly lanceolate with broad clasping base

Scape as long as leaves (in very slender 1–2 ft specimens) rising to the surface of the water, lower peduncles much elongated, 2–3 inches long

All flowers examined are hermaphrodite apparently ½ inch – 1 inch

No ripe fruit seen.

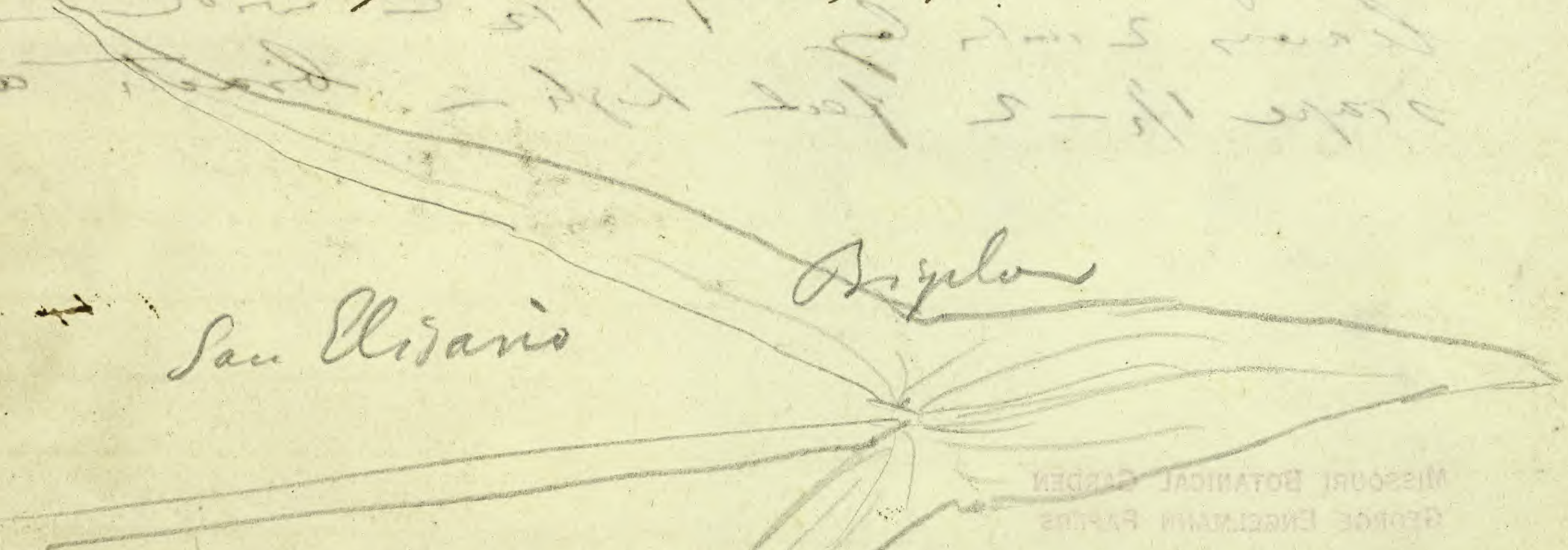
April 1856

Sagittaria Fendleri No. 840 Southwest of the Crossing of Atkinson River — shallow water on prairies

S. simplex var? longiloba — plt. sagittati lobis liberis — caroliate dorsaliter, limbo tri-angulato multo longioribus; scapo ramoso, ramis infra fl. pedicellum fl. fem. gerentibus; bracteis ovatis acutis; pedicellis gracilibus fl. fem. & mas. aequantibus; stylis bulbosis glabris ovatis, aequantibus stylis ovatis multo brevioribus; capellis obovatis obtusis, plerumque breviter apiculatis.

Similar to S. simplex in the long pedicells and the obovate obtuse fruit; distinct by the variously sagittate leaves (I have seen but a single one!) the ramose scape, the larger heads of capels (4 l. in diameter) the acute bracts, glabrous naked filament and fruit which has the remnants of the short style on the apex, not on the ventral edge —

Leaf prop. 1 inch long, lobes 2½ inches long; pedicells ½ inch long, flowers small



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10126

Sagittaria falcata Pursh folia grandia, foliis
lanceolatis (lineari-lanceolatis — ovatis) rigidis; stolones
saepe simplices s. ramosos; bracteis ovatis acutis
(subulatis) pedicellis fructiferis maxime elongatis
brevioribus, sepalis obtusis, nervosis,
plus minus pubescentibus; filamentis
subulatis pubescentibus antheram oblongo-lineari
aequantibus s. superantibus; stylo recto
ovario aequante; capillo oblanceolato, falcato
mucronato rostrato.

α. gigantea (S. Gigantea Nutt.)
Lake Pontchartrain
near New Orleans, also Florida
foliis coriaceis
ovatis, grandibus, stipitibus plerisque
duplo, scapo ramoso bracteis
acuminatis; floribus paucis subdioecis

β. angustifolia (Brackish swamps
Pulverton) foliis lineari-lanceolatis
stipitibus monoicis, bracteis obtusis;
scapo simplici.

γ. Ciliata Pinkey Fla
leaves 2 inches long 1–1½ inches wide —
scape 1½–2 feet high — bracts acute

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